

10/713,637  
END5240USNPAmendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A swallowable capsule comprising:

a detector;

a pulse shaping device in communication with the detector, wherein the pulse shaping device is configured to convert an input signal into an output voltage pulse; and

at least one single channel analyzer in communication with the pulse shaping device, wherein the at least one single channel analyzer in communication with the pulse shaping device is configured to analyze the output voltage pulse communicated from the pulse shaping device;

wherein the detector, the pulse shaping device, and the at least one single channel analyzer are each provided within the capsule, and wherein the capsule is operably configured to pass through at least a portion of a patient's gastrointestinal tract.

2. (original) The capsule of Claim 1 comprising at least two detectors.

3. (original) The capsule of Claim 1 wherein the detector is a radiation detector.

4. (original) The capsule of Claim 1 wherein the detector detects magnetic material.

10/713,637  
END5240USNP

5. (original) The capsule of Claim 1 comprising a plurality of single channel analyzers.

6. (original) The capsule of Claim 1 comprising a multiple channel analyzer.

7. (original) The capsule of Claim 1 wherein the capsule is coated with a material.

8. (original) The capsule of Claim 1 wherein the capsule is coated with a material for modifying the capsule's transit through the GIT.

9. (original) The capsule of Claim 1 wherein the capsule includes a magnetically-activated switch.

10. (original) The capsule of Claim 1 wherein the capsule includes an angular rate sensor.

11. (currently amended) A system for detecting particular tissues, the system comprising:

a swallowable capsule comprising a detector;

10/713,637  
END5240USNP

a substance for associating with ~~the~~ a particular tissue, wherein ~~the substance~~  
~~is capable of being detected by the detector~~ is operable to detect the particular tissue by  
detecting the substance associated with the particular tissue; and

a machine for verifying that at least one of the detector and substance are suitable  
for use.

12. (currently amended) A method for detecting target cells in a patient, the method  
comprising:

marking target cells in the patient with a substance capable of being detected;

directing a detector through a naturally occurring body lumen in the patient to  
detect signals from the substance; ~~and~~

mathematically transforming data representing at least some of the signals  
detected into transformed data, wherein the transformed data is indicative of the presence  
of the substance in the patient; and

determining whether a particular tissue is present in the patient, wherein the act of  
determining whether a particular tissue is present in the patient is performed using at least  
part of the transformed data.

13. (original) The method of Claim 12 comprising the step of verifying at least  
one of the amount, concentration, and activity of the marking substance.

10/713,637  
END5240USNP

14. (original) The method of Claim 12 wherein the substance comprises a monoclonal antibody.
15. (original) The method of Claim 12 wherein the substance comprises a peptide.
16. (original) The method of Claim 12 wherein the substance comprises a nanoparticle.
17. (original) The method of Claim 12 wherein the substance comprises a nucleotide sequence such as mRNA or DNA corresponding to a genetic material monoclonal antibody.
18. (original) The method of Claim 12 wherein the substance comprises a liposome or liposome structure.
19. (original) The method of Claim 12 comprising administering multiple radioisotopes to a patient.
20. (original) The method of Claim 12 comprising acquiring energy spectra.

Doc 22572v1

- 5 -

10/713,637  
END5240USNP

21. (original) The method of Claim 12 comprising fitting particle energy spectra to a model.
22. (original) The method of Claim 12 comprising fitting particle energy spectra to a model of the spectrum of an isotope.
23. (original) The method of Claim 12 comprising comparing received particle energies in different energy bands.
24. (original) The method of Claim 12 comprising employing multiple detectors.
25. (original) The method of Claim 12 comprising combining or comparing the outputs of multiple detectors to provide a spatial response pattern.
26. (original) The method of Claim 12 comprising comparing temporal variation of acquired data with predetermined patterns.
27. (original) The method of Claim 12 comprising employing multiple radiation sources external of a patient.
28. (new) A method for detecting target cells in a patient, the method comprising:

10/713,637  
END5240USNP

providing a substance having an affinity for a particular target tissue type,  
wherein the substance is configured to provide a detectable signal;

providing a capsule, wherein the capsule is configured to pass through at least a  
portion of a patient's gastrointestinal tract, wherein the capsule comprises:

- (i) a detector, wherein the detector is operable to detect the signal provided  
by the substance, and
- (ii) a circuit in communication with the detector, wherein the circuit is  
configured to process output by the detector to provide a data signal indicative of  
the presence of the substance;

administering the substance to the patient;

administering the capsule to the patient, wherein the capsule is administered  
orally, wherein the capsule passes through at least a portion of the patient's  
gastrointestinal tract after the act of administering the capsule to the patient; and

analyzing the data signal to determine whether the particular target tissue type is  
present in the patient.

29. (new) The method of claim 28, wherein the substance has an affinity for  
cancerous tissue.

30. (new) The method of claim 28, further comprising administering a probe signal,  
wherein the substance is configured to provide the detectable signal in response to the probe  
signal.

10/713,637  
END5240USNP

31. (new) The method of claim 28, further comprising tracking the position of the capsule along the patient's gastrointestinal tract.